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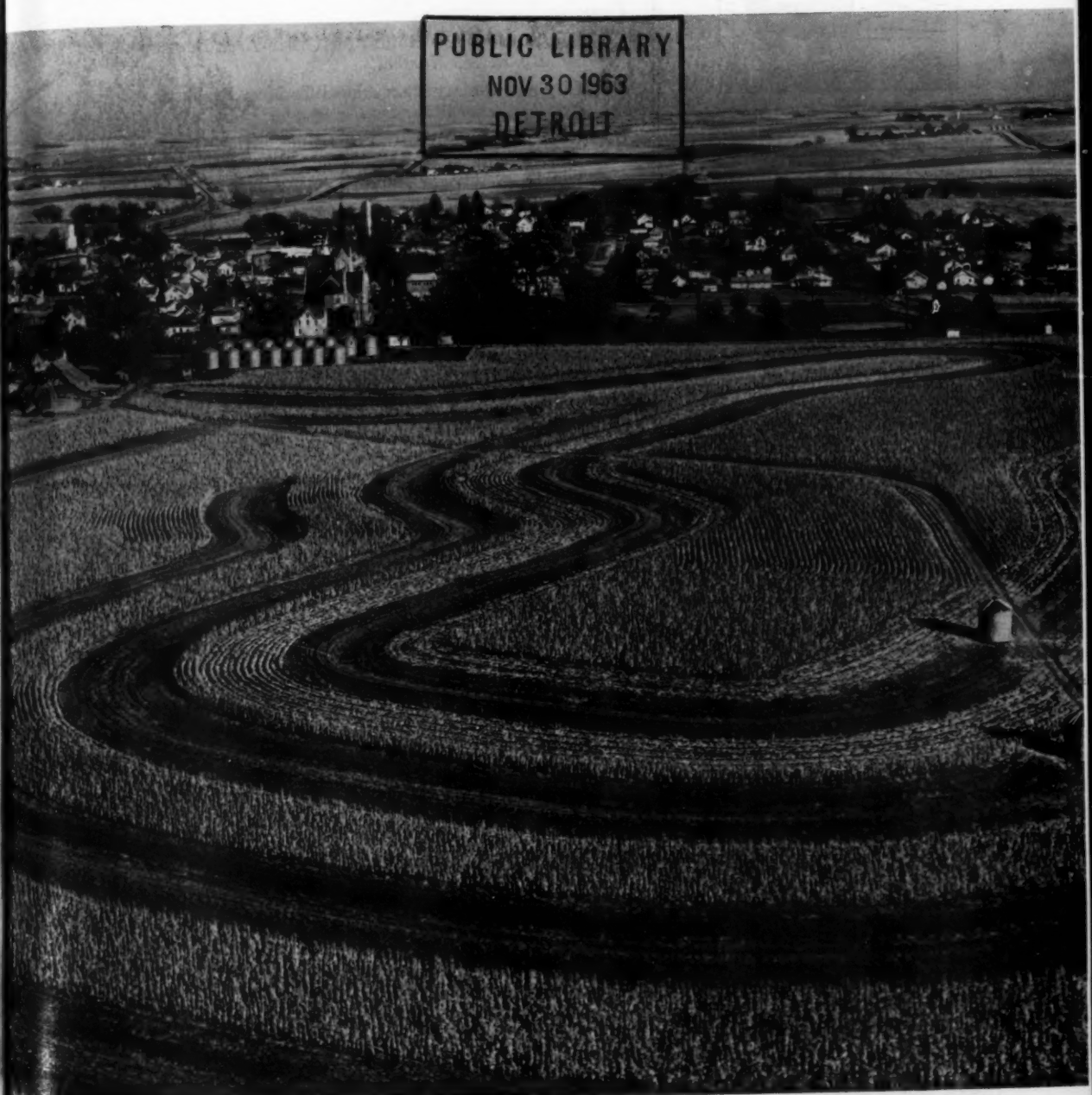
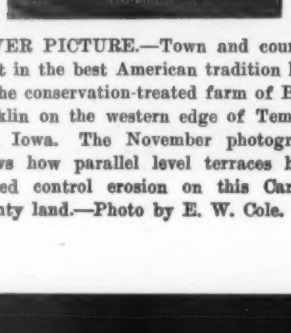


SOIL CONSERVATION SERVICE • U. S. DEPARTMENT OF AGRICULTURE

Soil and water conservation contributes directly to the increasing efficiency with which United States farmers are producing food and fiber and wood crops for 190 million citizens and for world outlets.

The vital importance of their being able to supply today's and future demands, in the amounts needed when they are needed, is pointed up by the fact that while the Nation's urban population has increased to 70 percent, farm population has dropped to only about 7½ percent of the total. Of the 3,134 counties in the United States, only 361 are in metropolitan areas, but the Nation's total population growth in the 1950's occurred in those counties.

The percentage of people actually producing farm commodities is still lower than farm-population figures indicate, because of part-time and other urban workers' living on land units classified in the census as "farms." One farmer today produces the food for himself and 28 other people. In 1940, when conservation land planning and treatment was being speeded up through farmers' and ranchers' still-new soil conservation districts, each farmer produced for himself and 10 others. At that time, 23 percent of the people in the United States were classified as farm population.



COVER PICTURE.—Town and country meet in the best American tradition here at the conservation-treated farm of B. J. Conklin on the western edge of Templeton, Iowa. The November photograph shows how parallel level terraces have helped control erosion on this Carroll County land.—Photo by E. W. Cole.

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Soil Conservation

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FRANK B. HARPER, Editor

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Soil Surveys Are Guides for Many Urban-Area Developments

By R. M. Marshall

URBAN area planners the country over are following the example set years before by their farmer neighbors and are using soil surveys to help them plan the most efficient use of their shrinking and already overburdened lands.

A continuing shift from a once predominantly rural land occupancy to an increasing urban concentration among the 190 million people in the United States involves the conversion of about 1 million acres a year of agricultural land to suburban housing, industrial developments, highways and airfields, recreational areas, and other nonagricultural uses. In the many times unplanned, uncontrolled growth of our towns and cities—referred to variously as "urban sprawl," "megalopolis," "suburbia," "rurbanization," or other designations—often the best agricultural land is the first to be covered with concrete. Sand and gravel deposits needed for future construction also often are lost to use.

Homeowners, developers, taxpayers, and local governments all may suffer costly damages—new homes flooded, cracked walls and wet basements, inoperative septic tank systems, deterioration of streets and highways from soil expansion and contraction, severe erosion on unprotected sloping areas, overtaxed water-disposal systems, sediment-clogged sewers, silted reservoirs, and contaminated well water supplies. Soil surveys have helped avoid some of this extensive damage.

The soil and water conservation problems resulting from such land dislocations can be dealt with only if soils and other available technical information is used by all concerned—from urban and rural planning authorities and developers to contractors and builders.

Response of city and other local groups to this need has led to their cost-sharing with the Soil Conservation Service for making standard soil surveys, generally through a 50-50 arrangement. The local group generally bears all the costs for additional information and data not normally collected in soil surveys of agricultural land—such as depth to bedrock, resistance measurements of the soils for use in corrosion engineering, and laboratory determinations of their shrink-swell potential.

Some local groups are using part of the money granted them by the Urban Renewal Administration of the Housing and Home Finance Agency for urban planning to cost-share the making of soil maps and the development of predictions about soil uses in urban-fringe areas. Some groups are requesting general soil maps which only show major kinds of soils in general soil groupings. These general maps are not suitable for detailed, or operational, planning purposes, but are sufficiently detailed to outline large soil areas of questionable suitability for septic tank sewage disposal systems or for adequate foundations for structures and areas subject to flooding.

HHFA grant money is also being used for cost-sharing detailed or operational soil surveys and reports when the area lies in the path of urban development. The SCS has set up a long-term schedule to complete detailed soil surveys for the entire United States. Local governments and planning authorities obtain a priority in the schedule by contributing to the survey's cost. The HHFA 701 grant money used in soil surveys is limited to the amount of the locality's contribution to the SCS.

The SCS in May 1963 entered into an agreement with the South-

Soil and water conservation district farmers and conservation workers throughout the Nation again will be among those joining their town neighbors in this year's annual Farm-City Week observances from November 22 to 28.

Land and water resource conservation has received increased emphasis each year, both during this annual week and in the year-around activities of national, State, and local Farm-City Committees coordinated by Kiwanis International.

The importance of teamwork in conservation planning and action has been reflected, meanwhile, in the multiplying numbers of community small-watershed protection and flood prevention projects, usually cosponsored by the farmer districts and local business and other interests in benefiting towns or cities. Rural areas development, recreational, and other newer improvement and development undertakings in agricultural sections of the country all depend upon the closest farm-city cooperation for their effectiveness.

More than 10,000 United States and Canadian communities participated in 1962 in Farm-City Week programs designed to build better understanding between rural and urban neighbors.

The author is assistant director, soil survey operations, Soil Conservation Service, Washington, D.C.

Suburbia on the move is shown in this view in Montgomery County, Md.

eastern Wisconsin Regional Planning Commission to make soil surveys for use in planning a 6-county area (Washington, Ozaukee, Milawaukee, Racine, Kenosha, and Walworth) in 3 years. SCS will receive $139,000 for this survey. An agreement also has been signed with the Northern Kentucky Area Planning Commission to provide soil maps and predictions for the Greater Cincinnati Area. SCS will receive $5,000 for these.

Additional money is being contributed to the cooperative soil survey by State appropriations in a few States, and by soil conservation district governing bodies, local planning and other groups.

Ela Township in Lake County, Ill., was one of the first in the country to cost-share soil surveys. Lake County is providing $20,000 for the survey during the next 4 years.

Work with the Monroe County Soil Conservation District in New York is accelerating a standard soil survey there, and a soil survey was made of a park area in the Huron-Clinton metropolitan area.

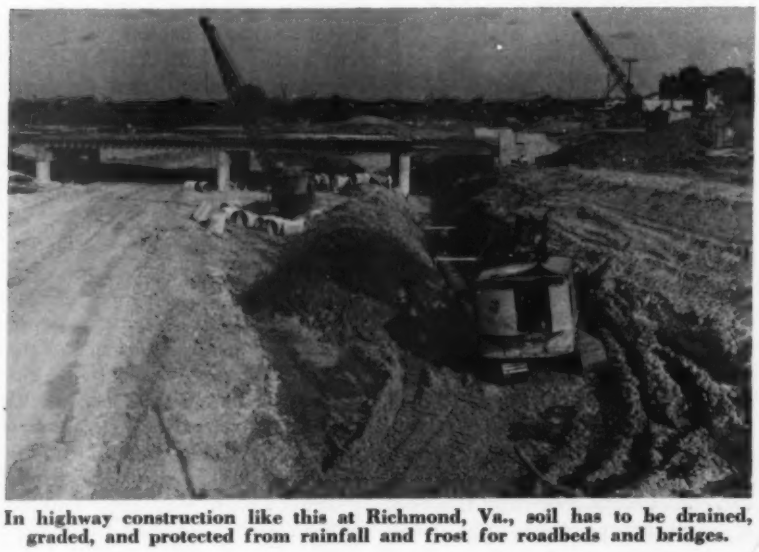
On June 5, 1963, the last acre of the soil survey of Montgomery County, Pa., was mapped, with a special ceremony. The county put up $30,000, over 3 years to accelerate the survey. The State also contributed $10,000. The county planning officials used preliminary soils information and maps as the work progressed, to locate areas suitable for residential, industrial, and municipal development.

Hanover Town, Mass., along with the towns of Acton, Whitman, Avon, Sudbury, Greenfield, and Dracut, have entered into cost-share arrangements with the SCS for soil surveys to be used for urban planning. The Massachusetts Department of Commerce is publishing the Hanover Town survey. In some cases, consulting firms are cost-sharing the surveys, in order to have base soil data for planning in some of these towns.

Connecticut is approaching the problem of overall town planning in towns like Hartford, Danbury, and Stamford by providing general soil maps (land resource unit maps), with interpretive data, to guide making a layout for housing, industry, schools, shopping centers, and roads.

Virginia was one of the States which began several years ago to use cost-shared soil maps and predictions for planning in urban areas. Fairfax County was probably the first county in the United States to employ its own soil scientist to interpret the maps and help landowners. Cost-sharing in soil surveys has spread to Henrico, Augusta, Chesterfield, Orange and other counties.

James Island in South Carolina has a new soil survey and report entitled, "Soil Resources for an Expanding Population." The survey was made at the request of the Charleston County Soil Conserva-



In highway construction like this at Richmond, Va., soil has to be drained, graded, and protected from rainfall and frost for roadbeds and bridges.

Soil surveyors like this one on the job near Litchfield, Conn., check exposed banks and cuts to learn about soil suitability for building or other use.

tion District, which paid the $2,500 printing costs.

Other States that have been using soil surveys in urban planning include New Jersey, Michigan, Texas, Missouri, California, and Oklahoma. Santa Clara County, Calif., for example, adopted ordinances excluding subdivisions, factories, and stores in the agricultural zone it established.

Even where agriculture is not an important alternative land use within the urban fringe, essentially the same soil classification is needed for predictions about housing, industrial development, sanitation, drainage, parks, pipelines, and road and street construction. Oftentimes, even greater mapping detail is necessary in delineating areas of different soils in urban-fringe areas than on agricultural lands. Special emphasis is given to the engineering properties of soils that influence their suitability as subgrades and foundations.

Depth of soil to rock is important in building or other construction, and in laying out utility pipelines to avoid bedrock and other restrictive layers. The information on soil depth alone has saved contractors and cities more than the cost of the surveys in some cases.

Soil surveys save urban property owners and local governments substantial sums in other ways. One is by determining soil drainage characteristics so builders may avoid, for example, soils that are periodically flooded and consequently are not economically suitable for housing or industrial development but should be left in agricultural or recreational use.

Slope is another important feature in the urban-area soil survey, because special care is needed in laying out a development to avoid leaving the soil bare and exposed to rains and subsequent erosion damages. The runoff that has to be handled in urban areas is much greater than on land in vegetation,

Oil and gas companies need to know about soil before laying pipelines such as this one going in near Lincoln, Nebr.

because rooftops, streets, parking areas, and the like produce virtually 100 percent runoff.

Because they provide dependable information on these and other aspects of urban-area land capabilities, the soil maps and soil predictions provide a basis for orderly progress in urban-fringe areas instead of hit-or-miss "urban sprawl." The technical data become practical guides that provide the "city fathers" with a scientific basis for decisions in urban development—from office buildings to golf courses—and thereby help assure more stable and rewarding land use in urban-fringe areas.

CUTTING DOWN EROSION AND SILT DURING SUBURBAN CONSTRUCTION

More care and better planning to cut down on silt fed into streams during large-scale suburban construction are advised by Agricultural Research Service specialists. Recommendations for control of such silting, which can run as high as 121,000 tons a square mile, have been developed by Donald E. Whelan, hydraulic engineer, and Clarence S. Britt, soil scientist.

Reporting at the 1963 annual meeting of the Soil Conservation Society of America, Whelan said silt control programs should be planned ahead for entire watersheds that are to become urban areas. Procedures successfully used in protecting farmland should be followed, but research is needed on special urbanization erosion hazards. The cost of erosion control should be considered in the total cost of urban development.

Whelan cited results of sedimentation surveys near Washington, D.C., by the Geological Survey and the Soil Conservation Service. One found an estimated 3,880 tons of sediment eroded from a 20.5-acre site during the 18-month construction period of a mass-housing project near Kensington, Md. And urbanization of the Lake Barcroft watershed in Fairfax County, Va., between 1942 and 1957 produced 25,000 tons of sediment in the reservoir for each square mile of residences.

City and County Plan Ahead To Meet Urbanization Problems

By Remo Molinaroli

A specially prepared soil survey and drainage plan is being put into use by local officials in the Charleston area to help them cope with multiplying land-use and water-management problems arising from rapid urbanization in this South Carolina coastal vicinity.

Rapid population growth in central Charleston County has forced urban development onto poorly drained lands unsuited to homes or industry. Rurban areas already extend far beyond the relatively high peninsula between the Ashley and Cooper rivers on which the historic port city was founded, and beyond the present city limits.

Within 10 years, urban developments are expected to occupy the central one-third of the county, which stretches 90 miles along the coast and up to 15 miles inland. County planners estimate that another third of the county will be urbanized within 30 years.

"Before 1955, the metropolitan area grew without guidance or control," said J. Mitchell Graham, chairman of the Charleston County Council. "Before 1963 the installation of water-control measures in built-up areas was haphazard, the result of expediency. Drainage was designed to serve an immediate purpose, without regard to future developments."

As a result, water stood around many homes in wet seasons. Septic tanks didn't work, because of high water tables in the soil. There was flooding when spring tides coincided with heavy rainfall. Many residential subdivisions became slum areas before their time.

The author was formerly engineer, Soil Conservation Service, Charleston, S. C.

Subdivision regulations, adopted in 1955, were strengthened in 1961. County government and the Charleston County Soil Conservation District proposed that the drainage problem receive top priority action. The proposal was supported by businessmen, industry, landowners, and the Department of Defense, which has many installations in and near Charleston.

Soil survey agreement being completed by Charleston County Council Chairman Graham (signing), SCS State Conservationist T. S. Buie (l.), and SCD Chairman T. Wilbur Thornhill.

The county was tentatively zoned for development, and on this basis criteria were established for a drainage feasability study. The greatest degree of protection would be provided the coming urban areas. Truck crops ranked second, followed by general field crops, and then by trees.

The agricultural land, largely devoted to vegetable growing, is the best-protected nonurban area, because of canals established years ago by the Works Progress Administration and, more recently, through assistance from the Soil Conservation Service and the County Public Works Department. But because urban growth threatens the truck farms, farmers also have supported strong action to solve the county's drainage problems.

Support was not lacking, but money was. Then the soil conservation district and the county council each appropriated $15,000 for a study of drainage needs, the development of an overall plan to meet those needs, and the publication of a report. The SCS was given technical responsibility for making the study and the plan, with cooperation from the Charleston County Public Works Department. Among other agencies and individuals who helped were the State Highway Department, U. S. Corps of Army Engineers, the Charleston Chamber of Commerce, a pulp and paper company, and railroads serving the area.

The resulting "Feasability Study of Requirements for Main Drainage Canals," released on April 29, 1963, at a ceremony in Charleston, includes a reconnaissance soil survey of the county and aerial photographs showing existing and proposed main drainage canals, by watersheds. It shows locations for runoff storage basins and pump installations needed for watersheds which cannot be drained by gravity. Most of these are in residential areas.

Engineering data sheets give full information for each main canal system, and the estimated cost for each. The estimated cost of all drainage improvements is nearly

$4 million, not including rights-of-way or engineering costs.

The report is an overall plan to guide the establishment of drainage work by all public and private agencies. For one thing, laterals will not be permitted to extend far across the proposed watershed boundaries and bring an overload to any main canal. The plan proposes that when any watershed, or any portion of it, is to be developed the main canal will be made large enough to serve all future needs. Additional surveys and designs are to be made for each development.

The combined soil survey and drainage plan will serve many purposes:

Roads will be located where there will be the fewest drainage and construction problems, and where bridges can be large enough to allow for the increased capacity needed by the proposed canals. The Public Works Department is now using the plan as a guide for these purposes.

Real estate developers, industry, and others likewise can select areas which will present the fewest problems, thus helping private engineers in planning such developments. The Charleston County Planning Department is using the plan for comprehensive planning, and as a guide for zoning.

The plan also provides all physical data needed by watershed groups who apply for assistance under the Watershed Protection and Flood Prevention Act, or through the Accelerated Public Works Program; and it gives the soil conservation district a guide for drainage improvements in agricultural areas.

The study already is being used to guide drainage work in connection with Charlseton's mosquito abatement program.

Because rights-of-way in some areas will be expensive, and may include the cost of removal of some buildings, legislation may be needed to set up organizations with administrative and taxing authority to put the plan in effect. The report

***Urban-area problem:*—This Charleston subdivision in St. Andrews Parish suffered a paralyzing flood after 5.8" rain in 24 hours.**

***Farmland problem:*—Vegetable field at Mt. Pleasant, S. C., flooded for second time in a month in 1958 because of inadequate drainage outlets.**

***One remedy:*—A typical main drainage canal, dug by Horry SCD for Horry County Development Board.**

gives the basic data needed for such legislation.

"In Charleston County, perhaps more than in any other fast-developing metropolis, we must follow sound plans for land use and for drainage," Graham summed up. "We have no choice. Drainage is essential in all parts of the county. Where we can give adequate drainage, we can build homes and industry. On less-favored sites we can maintain our valuable truck-farming, general farming, and forest industries.

"Step by step we can develop all of our land for the purposes to which it is best suited, and prevent our expanding population from pushing itself out onto the mud flats."

California Urbanization Spurs Citrus Land Shifts—Conservation

By Alex Franklin and Bob Richardson

EIGHT thousand acres of new citrus trees—mostly oranges—have been planted in Riverside County of southern California during the past 5 years because urbanization and industrial growth drove many growers out of Orange and other counties in the Los Angeles metropolitan area.

The move of a number of these growers east into Riverside County is one example of the search for new orchardland that has extended to Tulare County and other areas in the State as orange acreage alone has given way in southern California to nonagricultural uses at a rate of some 10,000 acres a year. Soil survey information and technical land and water conservation assistance are being drawn upon in the location and development of such new citrus lands needed to maintain production levels of one of the State's main agricultural crops.

The continued expansion of citrus plantings in Riverside County, to illustrate, is the outstanding conservation activity of the Riverside-Corona Soil Conservation District. Most of the new citrus planting is on land formerly dry-farmed to grain, with alternative years of summer fallow, that subjected the land to serious erosion losses and deterioration difficult to control.

Major developments have been in the Lake Mathews, Temescal Canyon, Gavilan Hills, and Woodcrest areas of the district. District Directors Jim Topham and Crawford Teague credit the new development in this area to Soil Conservation Service cooperative soil surveys which indicated citrus development possibilities on lands formerly thought to be unsuited for citrus growing, because of soil supposedly too shallow.

Topham and his brother, Robert, started the present expansion in Riverside County 7 years ago when they began looking for new citrus land. The Tophams chose high ground north of Lake Mathews. The elevation meant relatively frost-free growing seasons, plus good air drainage. Most soils in this area are deep enough for citrus, surveys showed, and have good water drainage, though in some areas of limited soil depth frequent irrigation is required, and good management is essential for satisfactory production.

SCS technicians recommended that the soil be chiseled a minimum of 36 inches deep, further to improve drainage and the rooting pattern and to increase the root zone, by breaking up possible restricting layers in the soil. The

New housing subdivision replacing citrus groves in Orange County in summer of 1963.

The authors are work unit conservationist, Stockton; and engineer, Riverside; both of the Soil Conservation Service, California.

Newly planted citrus irrigated with portable pull-hose sprinkler system in Riverside-Corona SCD.

Service also is providing engineering and other technical help with sprinkler irrigation systems, which started coming into more intensive use in the area about 3 years ago.

In 1962, more than 200 acres of scattered citrus plantings were established in the new Woodcrest Mutual Water District alone. Similar planting activity took place in the Gavilan Hills area, as had earlier planting in the El Sobrante, Eagle Valley, and Temescal Canyon areas. The apparent success of these plantings has created a demand for land suitable for citrus, and land values have gone up accordingly.

The expansion of citrus in this area also is a result of availability of Colorado River water, through the Western Metropolitan Municipal Water Company, and of other favorable factors. Because of the water's salt content, good engineering design is required for all irrigation systems, as well as their proper operation and careful management of irrigation water to fit the water-holding capacity of the soil, meet the needs of the trees, and provide for leaching to remove accumulated salts.

The SCS cooperates with all contractors in obtaining good design for irrigation systems. A switch to low head, low pressure sprinklers in irrigation systems in groves planted "on the square," for example, gives uniform water distribution and eliminates the old problem of runoff water accumulating at the lower end of irrigation furrows. More than a million feet of buried pipe and a few hundred miles of surface hose are being installed this year, both in newly developed and existing orchards. Cost of the system varies from $200 to $800 an acre, depending upon their coverage and output.

Earlier plantings were made on contour gradient bench terraces and furrows irrigated around the rolling to strongly sloping hills. Land preparation was proportionately expensive. With most of the newer citrus plantings, the drag-hose sprinkler system is installed without land surface modification, at little or no additional cost. Some growers build terraces and outlets to carry water off their fields without erosion damage.

A continuing study of the problem of salt accumulation in the new citrus plantings using Colorado River water has been made cooperatively by the SCS and the Agricultural Research Service, with participation by the Riverside County Flood Control District. The water is metered at delivery point to each unit at a cost of about $35 an acre-foot.

Because erosion is a problem on new citrus land in the rolling hills, particular attention also is being given to the use of winter cover crops or mulches in young groves.

SCD Director Topham at outlet line for control of runoff water from citrus grove.

Ohio Farmland Is Converted To City People's Playground

By Walter H. Dove

THOUSANDS of Ohioans are finding Logan County their gateway to the great out-of-doors. These include people from Columbus, Dayton, Springfield, Lima, and Marion, who live only an hour away from this natural haven.

Timbered slopes, glacial clear lakes, and spring-fed streams found there are considered by many city dwellers a paradise. Den foxes, rabbits, and squirrels thrive in the area. Bass and trout are abundant in the many clear, cool, spring-fed streams.

In the past 10 years, many organizations have selected heavily timbered areas for lake sites. Logan countians are happy to welcome their part-time neighbors at the various campsites. Many of the new arrivals have called upon the Logan Soil and Water Conservation District, which has helped them with plans to improve their camping areas for recreation and as more favorable habitat for nature study.

The district and the Soil Conservation Service staff assigned to it have provided such help as: Soil surveys of campsites; current information on adaptable plants and animals; and aid in reforestation projects and the building of artificial lakes.

With the soil inventory and a land-use planning map, the owner or representative of each organization listed the conservation needs as he and the SCS technician went over the land, as well as practices and treatment selected by the owner to meet these needs. In addition, management of the woodland and wildlife areas was agreed upon. Access roads and firebreaks were located, along with other measures vital to the recreation planned program.

2,200-ft. ski slope opened in 1962 on John Shoots farm at Zanesfield.

All of the land was converted from farmland, of which 2,000 acres formerly was woodland and 996 acres was rotation cropland. On a 260-acre farm owned by Don Hilliker, for example, more than a mile of trout streams, seven hunting areas, and a lodge have been established on former cropland.

The reforestation program included 300 acres of planting in old stands of timber and on 600 acres of former cropland. Wildlife crops were planted on 300 acres of former cropland. The trees and shrubs were obtained from the Ohio State Department of Forestry, private nurseries, and the State Department of Natural Resources. The State Farm Forester supervised the reforestation planting and woodland marketing. The Agricultural Conservation Program provided cost-sharing.

The conservation plans developed by the owners, with technical assistance from the SCS, show this statistical conservation progress: 161-acre camp with 60 acres in woods and 60 acres in reforestation; 270-acre camp with 71 acres in woods and 147 acres in reforestation; 130-acre camp with 70 acres in woods, 23 acres in lake, and 34 acres in reforestation; 377-acre camp with 221 acres in woods, 2 acres in lake, and 145 acres in reforestation; 80-acre camp with 40 acres in woods and 36 acres in lake.

Three separate Girl Scout councils, with headquarters in nearby cities, are among the organizations represented in this recreation movement in Logan County, a part of which was the last home of the Shawnee Indian tribes before they were moved to the Oklahoma reservations, and still abounds in Indian lore. Indian Lake and the headwaters of the Miami River were enlarged for a feeder to the Miami Erie Canal System in Ohio. The principal transportation of a century ago, this canal system is fast becoming the boating capital of central Ohio.

Two religious denominations also have established camps for use by their youthful members from western Ohio counties.

The author is work unit conservationist, Soil Conservation Service, Bellefontaine, Ohio.

Lifeguards instruct swimming class at Camp Wesley on 27-acre lake.

Columbus Y. M. C. A. Camp main building west of Bellefontaine.

Springfield Girl Scouts Camp Macochee headquarters near Zanesfield.

A generation ago, when the Columbus Y.M.C.A. leaders were searching for a campsite, they found deep, glacial Silver Lake at the end of a 4-mile trolley ride from Bellafontaine. It was the recreation center of thousands prior to World War I. Later a deep glacial lake site east of the county seat was developed for public recreation.

Of growing importance in the recreation-conservation picture is the Zanesfield-Jefferson township area, also steeped in Indian lore and including the Zane Caverns and the Ohio Caverns. A dreamed-of ski slope will soon be a reality on the steep wooded slopes just south of Zanesfield. The Valley High Ski Resort, on the John Shoots farm, has been enlarged by 120 acres, to give space for a golf course and thus provide year around recreation.

The county is dotted with kettle-hole lakes left by the glaciers in the dim past. There are 26,000 acres of woodlands in this area. Muck areas and other lake soils in the Zanesfield locality still have a high water table, providing abundant water for springs and wells.

All concerned agree that the opportunity of living in youth camps in this environment is of great value to the young city dwellers. Also, the conservation value of these youth camps cannot be measured in dollars and cents. For example, the campers have been given an opportunity to help plant trees and shrubs, thereby increasing both the material and esthetic values of the area.

The seven youth camps in the county show a total of about 1,200 acres devoted to camping. The camp areas proper include 498 acres in woods, 61 acres in lakes, and 402 acres devoted to reforestation projects. These and many other scenic areas are being used to help meet the recreation needs of the State's exploding population.

Land—Water—People

By Donald A. Williams

THIS year's program theme of the Soil Conservation Society of America—"Land, Water, and People"—again brings into focus the most essential factor in any of our dealings with resource conservation and development in rural or other areas. That is, people! Conservation is for people, and it is only through them that conservation is accomplished.

The U.S. Department of Agriculture for more than a hundred years has been concerned with helping people—farm and ranch people and those with whom farm and ranch people do business in processing or marketing their commodities—make more money from their investment and labor and enjoy better living. The economic advancement and family welfare of people—farmers and ranchers and townspeople in the country's agricultural areas—have been basic objectives of the Soil Conservation Service from the outset of its establishment nearly 30 years ago to provide technical and other help in soil erosion control and related water management and other resource conservation.

But conditions have changed in rural America over the past century, and during the last 30 years. And, of all the changes brought about through agricultural research and technological advancement, none has had more effect upon the rural economy than the general shifting that has taken place from rural isolationism to broader and broader community identification and the interdependence of communities within wider county, watershed, and other areas. Conservation technology and programs must keep pace with and, in fact, be a part of change.

Rural Areas Development and other recent undertakings are designed to make that vast part of America which lies beyond our cities a more economically rewarding and pleasant place for people to live and work today and in the future. Soil and water conservation districts provide the best illustration of how local people can and do bring about rural area advancement through democracy in action.

Donald A. Williams.

No program of the Department of Agriculture better illustrates the idea of Rural Areas Development than the small-watershed program. Under it, a growing number of rural and urban communities have shown that they can halt soil erosion, stop destructive floods, improve drainage, supply water for growing municipal and industrial needs, improve irrigation, establish outdoor recreational facilities, and boost the economy in other ways.

Nearly half of the watershed projects approved for operations thus far are located in counties known to have unemployment problems. Project construction work in such counties, of course, provides local employment aside from the increased employment that may result from industrial, recreational, or other products of watershed development. Furthermore, a large number—177 of the 473 projects appoved for operations as of June 30, 1963—were multiple-purpose projects, which serve rural community developments needs best of all. The projects combine flood prevention with one or more of these purposes: Agricultural water management, recreation, fish and wildlife, municipal water supply, and special agricultural water management.

The 1962 Food and Agriculture Act also provided authority to initiate Resource Conservation and Development projects that will enable farmers, city people, rural communities, and other groups to work together to improve land-use patterns and develop the natural resources of rural areas.

Another provision is for attracting private investment for development of Rural Renewal projects comparable to urban renewal developments. These are to be in "severely disadvantaged" rural areas where much of the land is not in its best use, resulting in chronic underemployment and underdeveloped communities. Any of us who have observed the progress of urban renewal, in Washington, D.C., or elsewhere, can appreciate the possibilities of this rural counterpart. Also in 1962, the small-watershed act was amended to include cost-sharing on public recreational development and allow for the development of industrial and municipal water facilities for future use.

—Excerpts from talk by Administrator of the Soil Conservation Service, at 18th annual meeting of the Soil Conservation Society of America, Logan, Utah, Aug. 28, 1963.

"Let Us Vote for Grass and Water"

By Orville L. Freeman

WE have made much progress in conservation in the past 30 years. We can point to many tangible accomplishments . . . . to the almost 3,000 soil and water conservation districts . . . . to the 1.7 million farm ponds now built . . . . to the 1.2 million miles of farm terraces . . . . to the 5 million acres developed as cover for wildlife These are but a few examples.

Conservation is something more than protection—its real message is the use of land, water, air, wildlife, and forest resources, for the fullest enjoyment of all our people . . . The agricultural problem is basically a conservation problem, a question of how we are to use soil and water resources to serve the needs of all people.

For the foreseeable future we don't need more food—actually we need to produce less of some commodities. But there are growing needs of a different sort. Primary among these needs is the opportunity for outdoor recreation. We need, in a society of cliff dwellers and urban housing developments, room to walk . . . . room to play . . . . room to think in . . . . and room to meditate.

This need is converging on us at a time when the crisis point has been reached in agricultural policy . . . . in the decision as to how we intend to use land and water no longer needed to produce food and fiber. If we drift along as we have since the end of World War II, we could emerge from the decade of the 1960's with an aging rural population, gradually deteriorating natural resources, and vigorous and growing urban areas with no room—with sharply inadequate outdoor recreation resources.

A number of proposals are being made to solve the "agricultural problem" which are . . . . basically . . . . conservation programs. One of them would have the Government rent land from the farmer in order to keep it from producing surpluses. The second proposal assumes that the people in rural areas want to move away . . . . that they will fare better and be happier in the city. In my judgment any program to force the outmigration from rural America of such people by economic pressure is economically wasteful as well as harsh and cruel.

Orville L. Freeman.

There is a third way . . . . to constructively use the resources of soil and water to begin a new era in conservation technology . . . . to protect resources in ways that serve people. We call it Rural Areas Development. RAD encompasses most of the activities carried out through soil and water conservation work for many years by the USDA, but it also includes several new conservation tools provided by the Congress in the Food and Agricultural Act of 1962.

All of these new land use programs seek to provide the farmer with a better source of income, to encourage rural communities to make better use of land and water resources, and to expand the opportunities for outdoor recreation for city people. They apply to private land the very successful principle of multiple use by which we administer the Nation's forests.

The 1962 act also provided authority to initiate what we call Resource Conservation and Development projects. They will enable farmers, city people, rural communities, and private organizations to work together to improve land-use patterns and to develop the natural resources of rural areas. These projects will provide an exceptional opportunity for city and urban people living within easy reach of a C&D project to join with local people to create new recreational outlets.

The RAD legislation also authorizes rural renewal projects designed to attack the entrenched poverty now found in many rural areas. This is a bold program similar in its intent to the urban renewal projects which are helping our cities to renovate and rebuild their core areas.

In addtion to these specific programs enacted last year, the overall RAD program involves industrial loans through the Area Redevelopment Administration and through the Rural Electrification Administration; community facility loans and grants through ARA and, to a limited extent, through the Farmers Home Administration; rural housing loans, including a special program for financing housing construction for persons over 65; job training programs which provide rural people with the opportunity to learn new skills which can be used in the

new plants being constructed as part of the RAD program.

These programs complement the on-going programs being carried out by the other agencies of the Department — Soil Conservation Service, Farmers Home Administration, Forest Service, the Federal Extension Service, the Farmer Cooperative Service, the Rural Electrification Administration — which are dedicated to building rural resources.

Farmers are, and must become even more so, the guardians of our soil, water, timber, and wildlife resources. We must find ways to pay them not only for the food they produce—but for other services that we, the public, extract from these resources.

We are succeeding extremely well in taking the food we need—through the efficiencies of agriculture and the marketing system. We must now open the way for the constructive use of resources not needed for food—so they may help meet the broader needs of the rural and urban community.

The land resources are presently great—yet in many instances, especially around cities, the pattern is being cast. To commit land to open green spaces—for the benefit of nature-starved city dwellers—calls for quick action before the concrete closes in. Let us vote for grass and water, not concrete and asphalt.

—Excerpts from address by the Secretary of Agriculture at annual convention of the Izaak Walton League, Cincinnati, Ohio, June 14, 1963.

Iowa Farm Family Scores Par In Converting To Golf Course

By J. Dale Schott

WARREN and Robert Clark's partially converted Iowa dairy and hog farm now has a "carrying capacity" of more than 5,000 golfers a month drawn from the surrounding Des Moines area.

This father-and-son team converted 80 acres of their 240-acre farm into a 9-hole course which attracts as many as 500 golfers on a good weekend. The Clarks are cooperators of the Polk County Soil Conservation District, which helped them in the soil conservation and land conversion program.

Three years ago, the Clark family was operating a 40-cow Grade-A dairy herd and raising about 500 pigs a year. But Son Bob's recurring ill health, diagnosed as an allergy to livestock and other farm things, and a need for rather expensive dairy plant modernization left the alternatives of leaving the third-generation farm or changing its type of operation. The Clarks discussed different plans, which included maintaining the farm as a family unit earning enough income to support and educate a growing family, and to enable Bob's father, still active at 77, enjoy a less strenuous life. None of the ideas clicked until one day Bob on his way home from the doctor, noticed the relatively large number of players on the Wakonda Club Golf Course.

He figured that the golf course was no more beautiful than their own rolling pastures and croplands, and the idea came to him for converting part of the Clark farm to a golf course. Bob's proposal to the family and to friends brought a few raised eyebrows, but he immediately began collecting facts and started a program of self-instruction. He obtained assistance, suggestions, and advice from golfers, golf-course managers, soil conservationists, attorneys, and others, who encouraged the Clarks in their venture.

For example, Floyd Harrison of the Soil Conservation Service working with the Polk County Soil Conservation District pointed out that conversion of the 80-acre tract to a golf course would place more of the rolling land into grass, further reducing soil loss, cutting down the acreage devoted to grain crops, and providing supplemental income to the family farm. Although Bob had never played golf, the game always had intrigued him; and his associations with golfers convinced him that his golf course idea held promise.

Much of the farm equipment, such as tractors, trucks, harrows, and grass drills, could be utilized in seedbed preparation, grass planting, and maintenance of fairways

Bob Clark (l.) with Nephew Sammy Acheson and Bob's father, Warren.

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and greens. Maintaining good fairways and greens would not be unlike maintaining good pastures.

The farm pond put in for erosion control, livestock water, and fishing could be utilized for a source of water supply for operation of an overhead sprinkling system needed for irrigation of fairway and golf greens. The old but well-built 24-stanchion dairy barn could be converted into a suitable clubhouse. The bent-grass stolons needed in large quantities for planting golf greens could be grown in their own farm grass nursery.

The golf enterprise, along with the remaining 160-acre farm, would more than provide gainful employment for the entire family. The location, almost adjacent to the Des Moines Municipal Airport, was ideal. All this, combined with an increasing number of golfers in the Des Moines area, added up to an opportunity for building a successful family enterprise.

All of the Clark's conversion plans were carried out; and today, after 3 years of hard work and cash investment of approximately $30,000, their Willow Creek Golf Course is a going concern. All members of the family help:

Bob manages both the farm and the golf course. His wife and sister operate the clubhouse registration desk, golf equipment rental and sales, and a coffee shop. His sons and nephews maintain the fairways and greens. "Dad" Clark is always ready to help with either the farm or golf course work. A hired man and some seasonal part-time help are used.

The Clark farm conservation plan is being revised, with Harrison's technical help, to convert an adjacent 80 acres of rolling cropland and pastureland to permanent grass for expansion of the golf course to 18 holes. The Clarks recently applied to the Polk County Agricultural Stabilization and Conservation Service for assistance in doing so under the new Cropland Conversion Program.

1959:—**The old but well-built dairy barn.**

1963:—**Now an attractive and serviceable golf clubhouse.**

The Clark's new golf course doesn't lack for customers.

Farm-City Teamwork Boosts Virginia Rural Area's Economy

By Gordon S. Smith

VIRGINIA'S Carroll County is enjoying more prosperity as a result of joint town-and-country efforts sparked by two decades of successful conservation farm improvement.

In common with many other rural communities, the county had found itself in an economic pinch brought on by declining farms, creeping unemployment, and other farm-based problems. Today, a thriving agriculture, new home and school developments, new industries, and a solid tax base mark the progress of this southwestern Virginia area's "homemade" rural areas development program.

Planning.—Mayor Cooley (center) and Paul R. Batchelor (l.) and William Thomas of SCS discuss new rural development ideas.

Since settlers first tilled the Appalachian country, row crops had been the mainstay of Carroll County's economy. Then came the stiff competition of modern management for which small fields plagued with erosion, drainage problems, and rocky soil weren't suited. Many farms were abandoned, while some owners held on, looking in town for supplementary jobs. Business, tax receipts, ready money, and credit all were affected.

Looking for an answer to their problems, Carroll County farmers enrolled in the 4-county New River Soil Conservation District locally organized in the early forties. It offered one-stop services available from several Federal and State agricultural agencies, including help making soil surveys and in the then-revolutionary method of land and water-use planning from the Soil Conservation Service. The soil surveys indicated most of the land was better suited for grassland.

Beef and dairy operations gradually spread to abandoned acreages, and farming took a new lease on life. The change solved much of the land-use problem, but most farms still were too small to support families. Idle times and low incomes remained the twin woes of 75 percent of the 3,000 farmers in the county.

Organization:—Manager Russell T. Farnsworth explains how two-county C. of C. was formed to help bolster local economy.

The question remaining was how to create more jobs. A group of businessmen at Hillsville, the county seat, took on the rural development plan assignment that in less than 8 years, with advice and help from the Extension Service and others, was to kick the wolf off the doorstep. Headed by Mayor Raleigh M. Cooley, the group formed the Carroll County Chamber of Commerce. Their first objective was to initiate a rural development program.

A resource inventory was needed, but Carroll County still was on the SCS waiting list. After the Rural Development Committee made a strong case for their urgent need for soils information, the county's soils were completely mapped and classified.

The final report is soon to be printed, but the soils information already has aided development: Guided by soil character, 1,000 soil conservation district farms have been planned for sustained-income operation; and soil data have been useful in locating sites for new industry, schools, and a much-needed inter-State highway.

Strides made in Carroll County caught the eyes of the city fathers at Galax, an industrial center straddling the county line between Carroll and Grayson counties, 13 miles from Hillsville. They also had economic problems, and made proposals that materialized

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New industry:—**Textile plant built with local funds employs 1,000 local people.**

as today's Carroll-Grayson Chamber of Commerce.

The Carroll-Grayson Industrial Land Corporation, an off-shoot of that parent group, concentrates on new industry. It initiated a local loan-investment program; and $10-to-$20 shares quickly passed the million dollar subscription mark. A national textile firm, attracted by the low-interest loan fund, among other favorable local considerations, built a plant between Hillsville and Galax that now employs 1,000 local people.

The Chamber of Commerce published an attractive booklet listing numerous development sites in the county. The booklet includes maps of sites and information on soils, water supplies, recreation facilities, schools, and shopping areas.

"We soon learned that industry folks always ask the same questions," Cooley recalled. "They want to know about all the aspects of community life right down to names of music teachers. We had to have the right answers."

The ball started rolling. A vacant plant in Hillsville was reopened by a new electrical firm. A nearby chemical plant expanded its facilities. In the past decade, 10 new schools have been built. Motels have sprouted. Hillsville's Main Street has livened. People are spending more money in town.

Farmers, meanwhile, are investing more in conservation, further increasing their incomes. They found that trees, in particular, are a good long-range, profit-making crop; and erosion-scarred hillsides are being protected with them. Last year alone, half-a-million trees were planted in the county. The Farmers Home Administration reports that loans for rural home building and improvement are on the upswing—and there are fewer foreclosures.

The most recent community improvement is the new 172-acre

New school:—**One of two built this year as part of $3 million Carroll County school construction program.**

New woodlands:—**More than ½ million trees have been planted in Carroll County in the past year. Seven-yr.-old white pine on B. C. Vaughan farm.**

Gayhill's Country Club, also a district cooperator. The nine-hole golf course, laid out on an abandoned farm between Hillsville and Galax, was financed by local contributors. Plans include a 1½-acre pond for irrigation, swimming, and fishing, and for fire protection for the clubhouse. Two smaller ponds will add irrigation water and serve as hazards for the dubs. More than a mile of tile and ditch drainage for the layout was also designed by SCS.

Bigger things may be in store for Carroll County. A large power dam is in the planning stage, on New River near Galax. The proposed Stewarts Creek watershed protection project, cosponsored by the New River district, the neighboring North Carolina Surry Soil and Water Conservation District, and the Surry County Board of Commissioners, promises more benefits for Carroll County. The latter project would include 25,600 acres in Carroll County and calls for several floodwater-retarding dams. Multipurpose structures also could provide municipal water, recreation, and wildlife habitat.

West Virginia Watershed Project Ups Farmers' Income—Town's Economy

By Bernhard A. Roth

Mayor Rinehart (r.) discusses watershed plans with Glen Burton of SCS.

DEVELOPMENT of the Bond's Creek watershed in West Virginia started out as a "farmers only" project but soon became a farm-city undertaking with ample benefits for all.

Unruly little Bond's Creek flows near Pennsboro in Ritchie County, where mountain storms spill their rainwaters abruptly into the Ohio River a few miles away. The watershed protection and flood prevention project was conceived as a farmers-only project because 44 farmers are the only private landowners hit squarely by annual $18,000 flood damages in this watershed area on U.S. Highway 50 west of Washington, D.C.

Although the farm losses alone inspired and justified the work, now nearing completion, many urbanites will benefit. In fact, Mayor J. Carl Rinehart of Pennsboro says the watershed improvement is equal to "a new quarter-million dollar industry to us, in the number of people and resources it will bring into our economy." It is credited with having helped induce five new industries to move in during the past few years. With flooding cut to a minimum, farmers collectively stand to realize $15,000 added annual income. This without bringing in new land or harvesting surplus items.

A neighborly spirit extends across the wooded hills separating the watershed from Pennsboro. When the city folks heard of the farmers' watershed struggles, they wondered how they could help. Then Mayor Rinehart and Park Commissioner Beach H. Collins learned a dam was to be built on the other side of the ridge. To them, the dam spelled water; and water spelled fishing, boating, picnicking, and the extension of a badly needed recreation area for the tiny city park.

City leaders checked with the watershed-sponsoring Little Kanawha Soil Conservation District and assisting planning technicians of the Soil Conservation Service. They found that the farm-city needs would jibe perfectly. Engineers readily could add size to the dam to furnish additional water acreage for fish and wildlife and for public enjoyment.

There was a slight catch. The city's tab for the extra feature would be $10,000, or half the actual cost. Maintenance of the structure could run as high as

Park Commissioner — Barber Collins "sold" his customers on watershed idea.

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Local watershed people got credit toward their share of project costs by doing stabilizing work on new dam.

$4,000 a year. Farmers already had pledged $110,000 as their share of the total $368,000 project cost. It took Pennsboro one brief City Council meeting to take the plunge.

By late 1960, every farmer along 6 miles of flood-chewed channel had granted valuable easements. To the last man, they agreed to pony up labor and materials for annual channel maintenance. They were even willing to write it into their deeds to cover the 50-year life of the project. And the city people also had thrown in their lot.

Congressional approval put contractors to work almost immediately shaping, grading, and straightening the new channel designed to steer floodwaters and sediment away from meadows and crop fields, lawns and gardens, barnyards and outbuildings. Farmers and townsmen joined forces to form a watershed association, the better to carry out their respective ends of the job.

Landowners, meanwhile, moved ahead with credit-earning conservation land-use measures to "back up" the structures by helping to keep runoff waters from pouring pell mell down the slopes. They included 20 farm ponds, 80 acres of tree planting and 350 acres of woodland improvement, 500 acres of grazing control, and 2,000 acres of grassland upgrading—plus such incidental measures as controlling erosion on logging roads.

Business, civic, and industrial citizenry of Pennsboro went all-out to fulfill their part of the bargain. When the brush-, rock-, and tree-choked damsite needed a blitz job of clearing to put machinery in action, half the town turned out as volunteers. They, too, were credited in dollars and cents for their labor, more of which was donated when it came time to relocate utility lines.

A hat that was figuratively passed around the area came back brimful. Landowners tossed in as much as $50 apiece; the Ritchie County Court advanced $500; a bank at Harrisville, the county seat, donated $100. A requirement that an additional emergency fund of $2,000 be raised set off a whole circuit of money-raising social events in town, like fish fries, pony raffles, and booster parades. Out on the watershed, ladies of Highland Grange No. 512 put on turkey suppers, some of which drew State officials from Charleston and Federal leaders from Washington. The upshot was the emergency fund went over the top by nearly $1,000.

Today, new grass seedings are growing green along the trimly-shaped banks of the Bond's Creek channel, completed early in 1962. Meadows are producing 3 tons of hay an acre where less than 1 ton was harvested before. Pastures will support 4 animals to the acre —10 times their former capacity.

Pennsboro is forging ahead with its 375-acre park development, including more picnic tables, fireplaces, shelters, and telephone and power lines. Lookouts and trails are being installed for a better view of and access to the 44 foot-high dam.

This is the lake formed by the watershed dam.

District Farmers Profit When St. Louisians *"Go Fishing for Fun"*

By Howard C. Jackson

Lee Moorman, Jr., Wentzville, gets a bite in a "Fish for Fun" pond.

"LET'S Go Fishing for Fun" is a standing invitation each spring from cooperators in the St. Charles (Mo.) Soil and Water Conservation District to their neighbors in nearby St. Louis. This year, during the 2 planned public fishing weekends, 650 fishermen paid the district board of supervisors $551 to fish in ponds and lakes belonging to 20 cooperating farmers.

The idea of "Fish for Fun" came from Les Volmert, Soil Conservation Service work unit conservationist, working with the district. He figured it would be a good way for the district to raise funds for operating expenses. It also would give people in the city a chance to enjoy some recreation and to see good conservation farming.

The district supervisors organize and publicize the annual fishing events, and locate the ponds on a county map. They sell tickets for $1 each. Farmers allow their ponds to be used without cost to the district.

Many farmers let selected individuals come back throughout the season. Some charge for fishing all season, and they like the advertising these 2 weekends bring. Some district farmers are considering increasing their facilities.

Planning and organizing the St. Charles district fishing program has to be done on almost a year-around basis. Good ponds and lakes are lined up; and the year's program-plan is completed about

Ham Schultehenrich, children Don, Jay, and Jan, and nephew Bob caught these.

March 1, to give ample time for promoting the program, invariably set for the last weekend of April and first weekend of May.

First, letters and maps are mailed to St. Louis for sportsmen's clubs to use in their monthly newsletters. Next, meetings of the 5 major clubs are attended, when the weekend fishing program is explained and about 10,000 maps are distributed for members to take to their places of business. A letter and other information go to the newspapers and radio and television stations, all of which get complimentary fishing tickets.

The Missouri Conservation Commission handles tickets at its office in St. Louis and distributes maps through its outlets for hunting and fishing licenses. Maps also are distributed by U.S. Department of Agriculture agencies and others to sporting goods stores or any place where sportsmen might pick them up, including industrial plants in St. Louis and St. Charles.

After the first fishing weekend, news releases and pictures of catches go out, and more after the second weekend. The district supervisors pick up the proceeds each weekend, or after the program from the store outlets.

They think this program has many benefits in addition to the monetary profit, including conservation understanding by those involved. The program also improves the possibility of a small sideline income for those farmers who want to have people coming to their places throughout the year.

The winner:—5½-pound largemouth bass caught by Bill Harrower, St. Charles.

The author is State conservationist, Soil Conservation Service, Columbia, Mo.

Bobwhites Draw City Hunters To Georgia Conservation Farm

By R. Hoke Smith

R. F. Burch, Jr. (l.); his son, R. F. Burch, III, (r.) and Dr. E. D. Jones of Baltimore and his dogs.

HELPING sportsmen from as far away as Baltimore and Chicago have fun hunting quail on their farm is not only an interesting job for a Georgia father and son—it's a paying business. Every year, from around Thanksgiving until the latter part of February, hunters from at least a dozen States spend a week or two as paying guests shooting bobwhites on the 4,000-acre farm of Dr. R. F. Burch III in the Central Soil and Water Conservation District in Dodge County.

For several years, Dr. and Mrs. Burch have been providing rooms and meals at their home on the farm for the hunters, with his parents taking care of the "overflow" crowd at their larger home in Eastman. The veterinarian-farmer and his father plan to build a three-bedroom guest home as part of their priority quail-hunting expansion on their farm near Eastman.

Hunters pay $35 a day. That's for all costs, including food and lodging; dogs or kennels, and care for the hunters' dogs; guides, and transportation to and from hunting areas. Wives are charged $10 a day—whether they hunt or not! For their money, the city hunters find abundant game flushed from sprawling grain fields bordered by shrubs, pines, and hardwoods, along with home-cooked meals and Southern hospitality.

"Wildlife conservation is an important part of our farming operation, and it fits well into our overall program," says Burch, a member of the board of supervisors since the district was organized 15 years ago. "Wildlife thrives when good conservation is practiced, but if erosion washes away the topsoil it cannot produce the food and shelter needed by the birds and animals."

Ever since, the Burches have been cutting down on their acreage of cotton, corn, and peanuts and putting more land into pines, pastures, and wildlife plantings. They now have 2,000 acres in pines and 1,000 acres planted to Coastal ber-

Drs. Jones and Burch set out to shoot quail on the Burch farm.

The author is area conservationist, Soil Conservation Service, Perry, Ga.

mudagrass and Pensacola bahiagrass for beef cattle. They have had Soil Conservation Service technical help in making these changes, building farm ponds stocked with fish, and in working out their wildlife plantings.

Burch was Dodge County's first county agent, back in 1918-19, and has been a strong promoter of soil and water conservation through the years. He also has been a county commissioner, State representative, State natural resources commissioner, and head of the State Parks Division.

The Burches use plants that provide food for the quail during the late fall, winter, and early spring —perennial bicolor lespedeza, annual lespedezas, oats, wheat, rye, cowpeas, corn, browntopmillet, soybeans, and a special field pea that the bobwhites go for. Quail also find berries and other natural foods on the farm.

Burch has devoted full time to development of the wildlife program, the quail hunting business, and taking care of the dogs for the past 3 years. He's convinced that there is a need for wildlife conservation development on more farms, and making them available to hunters, because privately owned land produces about 80 percent of the Nation's game.

Dr. and Mrs. Burch and his parents all enjoy entertaining their guests and look forward to having them back every year. And most of them do come back—for instance, hunters like Dr. Everett D. Jones, an orthopedic surgeon of Baltimore, who has hunted with the Burches for five seasons and is a member of a conservation committee of Ducks Unlimited in Maryland.

"The fact that folks come all the way from Philadelphia, Chicago, or Cleveland to hunt a couple of weeks with us—and keep coming back—is proof enough that we have in Georgia a good farm potential that could be more fully exploited," Dr. Burch points out. "But a person should have sufficient acreage, although not necessarily as much as we have, food and cover for the birds, a keen interest in hunting and wildlife and in people, and be prepared to do a lot of the work himself with help of members of his family. Labor costs could eat up his profits."

Fun for 100 Maine Families in Conservation Farmer's Woodland

By Lester Fox

ONE hundred families of Bangor and neighboring Maine communities have a conservation-minded farmer to thank for a recreational paradise they are enjoying the year around. He is Calvin B. Johnson, whose 400-acre woodland, that he also operates as an income-producing tree farm, offers skiing, tobogganing, skating, snowshoeing, sleigh riding, swimming, fishing, horseback riding, hiking, hunting, exploring, picnicking, bird watching, and nature study.

Johnson's recreational development has stimulated community economy. It operates on a yearly budget of $10,000, most of which goes for local labor. Members buy their sports togs and gear from local stores. Financing has been through a Bangor bank, with no expenditure of funds by the City of Bangor or the surrounding communities.

The ski association membership is limited to 100 local families, with guest privileges. Annual membership dues are $105. Families that don't use the ski lift pay $30.

Johnson owned and operated a 90-acre dairy farm at Hampden, 3 miles south of Bangor, when a new State law would have required him to invest $18,000 to $20,000 in remodeling his milking parlor and installing new equipment. He sold his cows and went into the business of boarding horses. Then he bought the 400-acre woodland near Newberg, about 12 miles west of Hampden.

Seeing a need for outdoor recreational facilities, Johnson joined seven other local residents in forming Ski Horse Mountain Associates, Inc. They and others then organized the Ski Horse Mountain Association. The association plans all recreational activities, but Associates, Inc. is responsible for all financing. To get the enterprise started, the Associates obtained a $30,000, 20-year loan, and $7,000 on a demand note and other sums for short periods from a Bangor bank.

Johnson sold 15 acres of his woodland to the Associates for $300 for building sites. He donated full use of the remaining woodland without cost or restriction.

Associates, Inc. awarded a local contractor the $8,000 basic job of fixing up the woodland for recreation. The work included clearing

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slopes for skiing and tobogganing, and building a farm-type pond for swimming, fishing, and skating. Buildings to accommodate horses were erected, trails were made through the woodland, streams were improved for fishing, water supplies were developed, and a large, prefabricated building was bought from a local firm and set up as a lodge by the pond. A $15,000 T-bar ski lift was the last installation.

Before the woodland work was started, a conservation plan was drawn up with help of Soil Conservation Service technicians. As a cooperator with the Penobscot Soil Conservation District, Johnson had applied 20 complementary practices on his dairy farm. This program had controlled erosion, conserved water, built up fertility, and increased his grass crop yields.

The woodland conservation plan included seeding the ski and toboggan slopes to red fescue grass and red top and Ladino clover, with lime and fertilizer. That gave the slopes a good base for the snow and furnished an erosion-resisting sod.

To be doubly sure the soil would not wash away, Johnson installed miniature diversions across the slopes. They carry runoff water into the adjoining woods, where the soil absorbs it and holds it in storage.

Ex-dairy farmer Johnson boards about 30 horses, at $33 a month. The horses are owned by association members and are used mainly by their children. The farm is now all in hay. He grows 120 tons a year on 60 acres, and buys 25 to 30 tons locally.

Johnson has his woodland under a sustained-yield plan he worked out with the Maine Forest Service. So far, he has made a 10-acre harvest of cedar for fence rails and poles for building a stable, and has weeded maple and beech for pulp.

There are other rural area and community benefits resulting from Johnson's woodland conservation development. For example, rural fire departments receive training in new techniques. The Maine Forest Service holds firefighting schools for them in the woodland. It also holds schools for University of Maine forestry students, and takes Boy Scouts and other groups on educational tours through the woodland.

***Fishing:*—These boys enjoy fishing in the pond on the farm near Newberg.**

***Riding:*—Cynthia Higgins is one who used Johnson's bridal paths and riding ring.**

***Skiing:*—Recreation Director Sandy Gregg and family on Ski Horse Mountain course.**

◆

"Soils Suitable for Septic-Tank Fields," by William H. Bender, Soil Conservation Service, U. S. Department of Agriculture Information Bulletin 243, demonstrates the need to have satisfactory soils and a properly installed system in order to have adequate septic-tank filter fields. It discusses filter failures, use of soil surveys and maps, soil factors affecting the fields, and ways of calculating size, and gives pointers for selecting a site for filter fields.

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WOMEN SEE WHERE FOOD COMES FROM

By Mrs. James Nauss

HAVE you ever been hungry? I mean that kind of hunger that comes when there is no food to eat or, at best, perhaps a handful of rice!

I am an average American, and the average American in our great land of plenty has seldom been hungry as great numbers of the world's people are nearly always hungry. Until recently, I'd given little thought to the source of my food—I had just gone down to the supermarket and bought those foods I needed and could afford. But a recent tour sponsored by the Coastal Soil Conservation District of Texas changed that indifferent attitude.

This tour—the first in the district for women—was arranged for representatives of the local garden clubs and two other women's clubs. The response was good. Sixteen women representing seven clubs attended. Included in the group were Mrs. E. L. Meley, State conservation chairman, and Mrs. H. L. Taylor, Magnolia district conservation chairman of the Texas Federation of Women's Clubs; and Mrs. Elden Gaus, wife of one of the soil conservation district supervisors.

Work Unit Conservationist Genie Warren, Jr., of the Soil Conservation Service conducted the tour. We visited three farms in the Beaumont area and were shown good pastures, improved with grasses which grow well in the Gulf Coast area. We were told the advantages of a crop rotation using ricefields for pasture 1 year out of 3. While the land is in pasture it is being rested and enriched, at the same time it provides grazing for cattle, thereby producing food instead of just lying idle.

We observed another good conservation practice—allowing the cattle to graze the grass down only to an optimum height, so the grass plants can recover their growth rapidly and provide cover to prevent soil erosion and supply feed again next year. At our last stop—a large rice farm—we were shown the importance of proper drainage and irrigation systems.

They learned about farmer's problems and conservation values.

The author is clerk, Coastal Soil Conservation District, Beaumont, Tex.